PROFILE PUBLICATIONS

The Armstrong Whitworth Whitley

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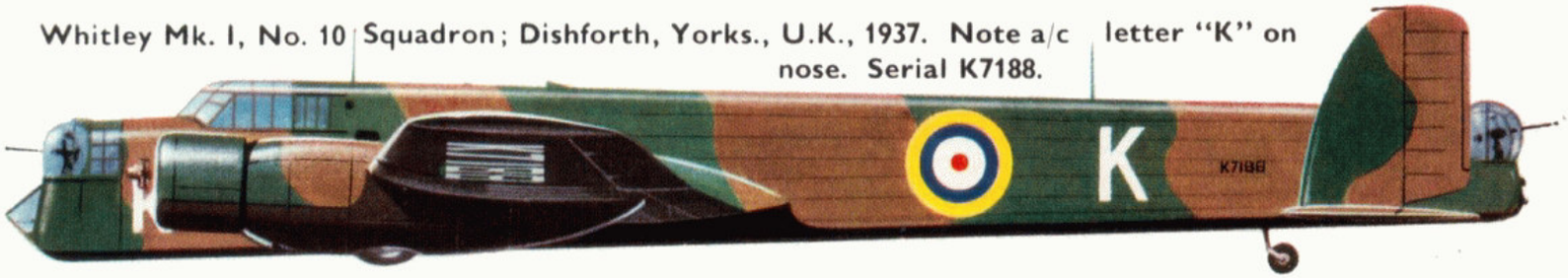
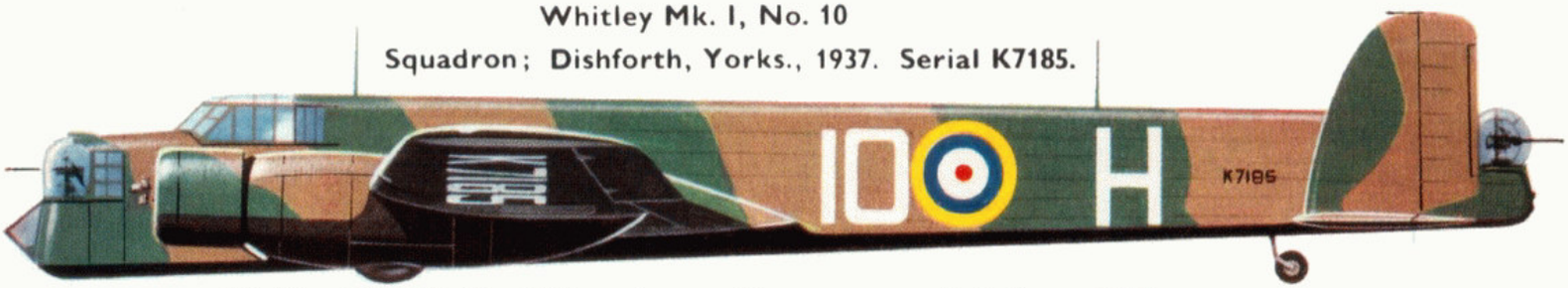
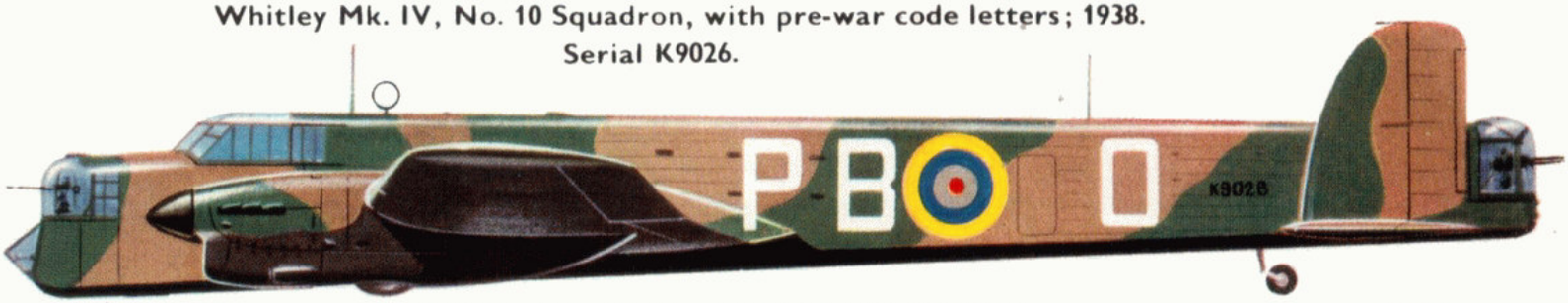
Whitley Mk. I, No. 10 Squadron; Dishforth, Yorks., U.K., 1937. Note a/c letter "K" on nose. Serial K7188.



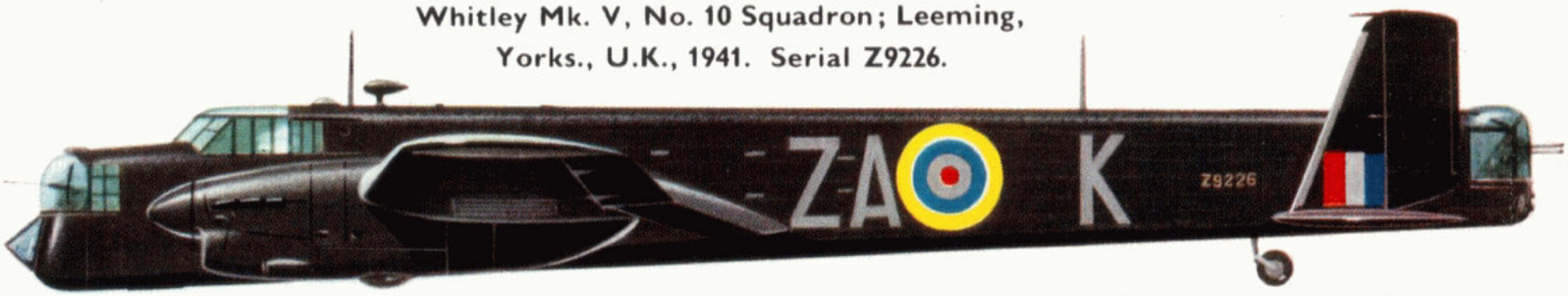
Whitley Mk. I, No. 10 Squadron; Dishforth, Yorks., 1937. Serial K7185.



Whitley Mk. IV, No. 10 Squadron, with pre-war code letters; 1938. Serial K9026.

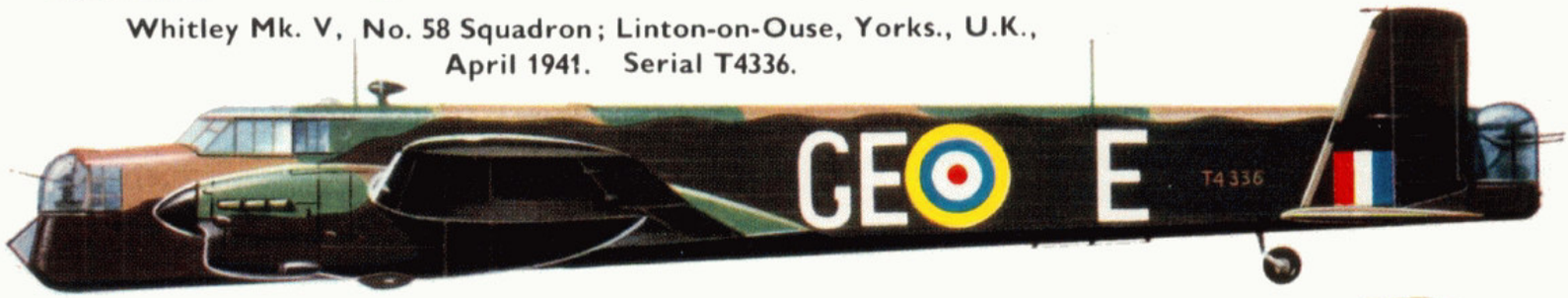


Whitley Mk. V, No. 10 Squadron; Leeming, Yorks., U.K., 1941. Serial Z9226.



Whitley Mk. V, No. 58 Squadron; Linton-on-Ouse, Yorks., U.K., June 1940. Serial N1428.

Whitley Mk. V, No. 58 Squadron; Linton-on-Ouse, Yorks., U.K., April 1941. Serial T4336.



Whitley Mk. I, No. 78 Squadron; Dishforth, Yorks., U.K., 1937. Serial K7207.

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The Armstrong Whitworth Whitley

by Philip J. R. Moyes

Whitley V tug BD661 comes in to land over a line of Horsas. To the Glider Pilot Regiment, the Whitley was always known as the "Wombat".
(Photo: Imperial War Museum)

The Whitley was the first into service of the trio of "heavy" bombers which bore the brunt of Bomber Command's early wartime offensive. The second was the Handley Page Hampden (see *Profile* No. 58) and the third the Vickers Wellington (see *Profile* No. 125). Whereas its compatriots were designed for day and night bombing, the Whitley was destined solely for night operations, due to its slower speed, as a replacement for the biplane Heyford. It was a sturdy (and some may think quite ugly) machine, regarded with affection by its crews and it earned a lasting place in aeronautical history by accumulating an impressive list of technical and operational "firsts"—including, in the latter category, the distinction of being the first R.A.F. bomber to penetrate into German territory in World War II.

The A.W.38 Whitley was built to Air Ministry Specification B.3/34 which was issued in July, 1934, for a night-bomber/troop transport, and was based on the earlier A.W.23 prototype. Named after the Coventry district in which Armstrong Whitworth's main factory was situated, it was designed by Mr. John Lloyd (A.W.A.'s chief designer) and his team and the first prototype (*K4586*) flew for the first time from Baginton on 17th March, 1936, in the hands of A. C. Campbell Orde, the company's chief test pilot. It was powered by two 795 h.p. Armstrong Siddeley Tiger IX moderately supercharged 14-cylinder two-row radial engines and was the first aircraft to fly fitted with de Havilland three-bladed two-position variable-pitch airscrews.

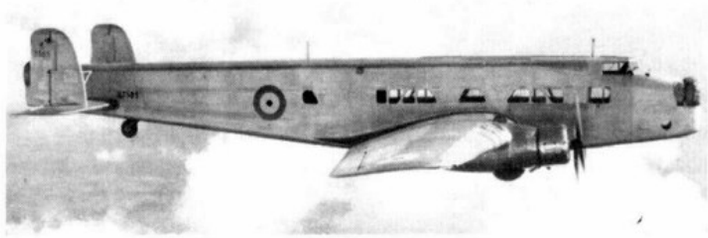
STRUCTURE

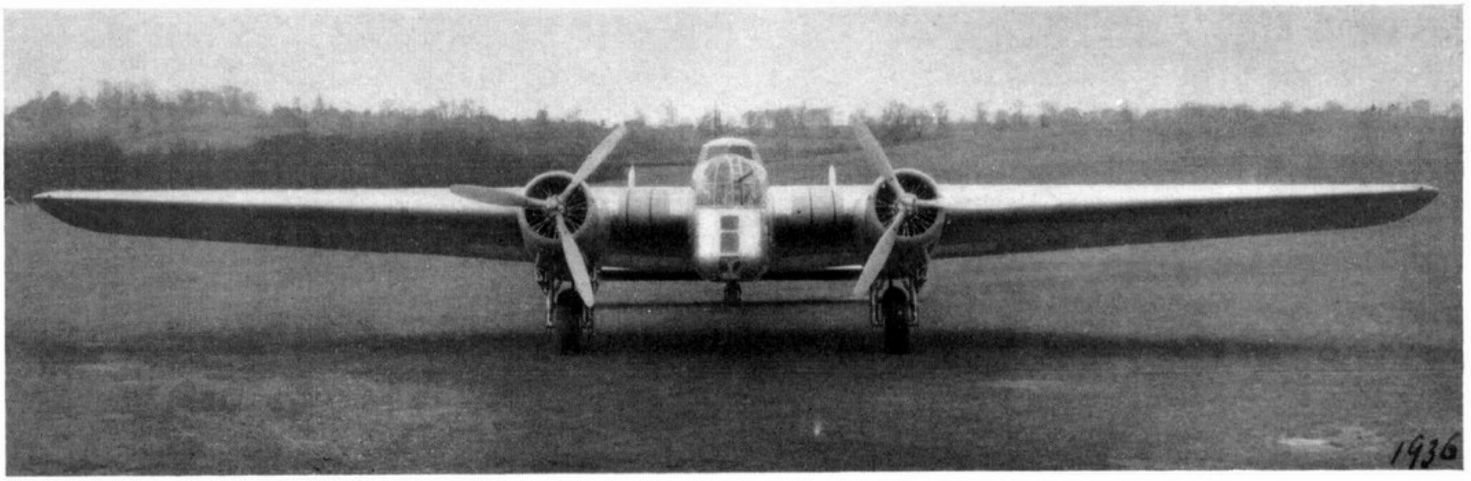
A noteworthy feature of the Whitley's construction was that the traditional Armstrong Whitworth tubular construction was almost entirely replaced by light-alloy rolled-sections, pressings and corrugated sheets. The fuselage was of the monocoque type and the main portions of the wing surfaces were covered with metal although not of the stressed-skin type of construction. For production everything was reduced to as few component parts as possible and all were of standard sections.

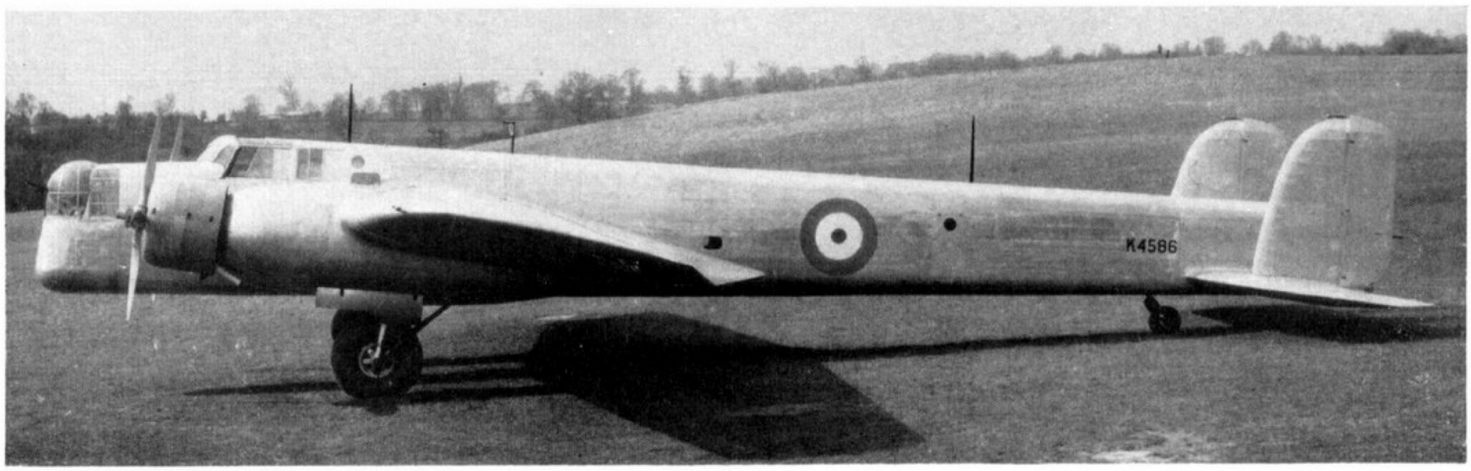
The decision to construct the Whitley's fuselage in monocoque form represented a big step forward at the time. Information regarding the strength of skin-stringer combinations was scanty, but the integrity of the Whitley's fuselage was amply proved by subsequent service, mainly in the early stages of the war when numerous cases of severe damage to the fuselage structure occurred, despite which machines returned safely from raids in enemy territory.

The fuselage was built in three sections, the main frames (of box section) being riveted to the skin and the intermediate frames (of "Omega" section) riveted to the inside flanges of the longitudinal top-hat section stringers. The whole was covered with Alclad sheet. The wing was also built in three sections. It was built up around a single box spar, consisting of two vertically-corrugated walls connected by sheeting corrugated spanwise, which formed the top and bottom of the box. The spar was stiffened internally by a series of bracing ribs. The

The A.W.23 transport, K3585, on which the design of the Whitley was based. (Photo: "Flight")







Two views of the first prototype Whitley, K4586, showing to advantage the wing's large angle of incidence. Although later in conception than the Hampden or the Wellington, the Whitley was the first to appear; the prototype was designed and built in a mere 18 months.

leading and trailing edge sections were bolted to the spar at each rib point and had open-section former ribs. The leading edge and box spar were covered with flush-riveted smooth metal sheet, and the trailing edge with fabric. Ailerons were of the "Frise" type with metal frames and fabric covering. Hydraulically-operated split trailing edge flaps of duralumin construction extended from ailerons to fuselage, landing and take off positions being 60 degrees and 15-20 degrees respectively. Tailplane structure was similar to that of the wings. Fins, elevators and rudders had metal frames with fabric covering, the fins being braced to the fuselage by horizontal struts. The elevators and rudders incorporated servo-balancing tabs which could also be used for trimming.

The broad, rectangular shape of the Whitley's low aspect ratio wing led to the aircraft being dubbed "the Flying Barn Door" while another feature, the big angle of incidence, was responsible for the aircraft's characteristic nose-down "sit" in flight. Just how the latter came about is rather interesting: when the Whitley was first designed, flaps had not made their universal appearance and in order to obtain the necessary ground angle to reduce the landing float and run, the thick, high-lift wing was given an $8\frac{1}{2}$-degrees angle of incidence. As it happened, efficient trailing edge flaps were provided on the Whitley—as they were also on the A.W.23—before the prototype flew, thus enabling it to reap their additional benefits during take-off and landing. However, the rather big angle of incidence did reduce the maximum speed by five or six m.p.h. because when the wings were in the cruising position the fuselage was nose-down by several degrees.

Fuel was carried in three main tanks—two of 182 Imperial gallons capacity each in the leading edge of the outer wing sections and one of 155 Imperial gallons in the fuselage roof, coinciding in plan view with the box spar. Two auxiliary fuel tanks could be installed in the front fuselage bomb compartment and with these, maximum fuel capacity was 651 Imp. gal. Oil tanks were situated in the leading edge of the wing inboard of the nacelles.

The Whitley's bomb load of 3,365 lb. was carried in two separate bays in the fuselage and in a total of fourteen smaller cells in the wing. Their doors, of wood and metal, opened under the weight of the falling bombs, and were closed by bungee.

INTO PRODUCTION

Verbal arrangements to put into production 40 Whitley Mk. Is and IIs based on the two prototypes then under construction were made on 12th June, 1935. Contracts for Whitley Is, IIs, IIIs, IVs and IVAs were placed during 1935-36 as part of the R.A.F. Expansion Programme, and in order to fulfil them, construction of the A.W.27 Ensign airliner had to be transferred from Coventry to Hamble, Hants. Whitley production at Coventry was at first shared mainly by three factories. Fuselages and detailed components were manufactured at Whitley Abbey, the company's headquarters; panel-beating and much detail work such as section rolling, fuel tank manufacture and detailed erecting was done in some shop space temporarily taken over at the old Coventry Ordnance Works in Smith Street; wing spars were built, the wings erected and final assembly done at

Baginton aerodrome—the Coventry Municipal Airport where work was progressing on A.W.A.'s large three-bay hangar. A grand total of 1,814 Whitleys was built before production ceased during the weekend of 12/13th July, 1943. At peak production in 1942, Whitleys were being delivered from Baginton at the rate of twelve per week.

THE WHITLEY MARK BY MARK

Whitley I.

Two prototypes: *K4586* (Type 188 to B.3/34) powered by two 795 h.p. A.S. Tiger IXs, and *K4587* (Type 194 to B.21/35) with two 935 h.p. Tiger XIs. 34 production aircraft (Type 193)—contract No. 421118/35—serialled *K7183–K7216*.

The production aircraft differed little from the prototypes. It retained the A.W. manually operated nose and tail turrets each mounting a single 0·303 in. Vickers machine gun and, like *K4586*, was powered by two 795 h.p. Tiger IX engines. Maximum speed at 7,000 ft. was 192 m.p.h., and at 15,000 ft. 186 m.p.h. It could climb to 15,000 ft. in 27·4 minutes and had a service ceiling of 19,200 ft. Still air range was 1,250 miles. Wing span was 84 ft., length 69 ft. 3 in., height 15 ft., mean chord 14 ft. 4 in., wing area 1,138 sq. ft., and aspect ratio 6:18. Empty weight was 14,275 lb., normal a.u.w. 21,660 lb., and max. a.u.w. 23,500 lb. At an early stage in the bomber's life its outboard wing panels were given 4 degrees dihedral to improve overall stability and this modification was also applied, retrospectively, on machines already delivered.

Whitley II.

46 production aircraft (Type 197 [some probably Type 220?]) to B.21/35 (contract No. 421118/35) serialled *K7217–K7262*. The twenty-seventh production Mk. I, *K7209*, is believed to have served as the prototype after modification.

This version differed from the Mk. I in being powered by the 845 h.p. Tiger VIII engine incorporating a two-speed supercharger. It was the first Service aircraft to receive this engine and the world's first military aircraft to take advantage of the benefits conferred by the two-speed blower. Empty weight was increased to 15,474 lb. and normal a.u.w. to 22,991 lb. Maximum speed at 15,000 ft. was raised to 215 m.p.h. and cruising speed at the same altitude was 177 m.p.h. Maximum speed at sea level was 185 m.p.h. and landing speed 59 m.p.h. Time to 15,000 ft. was 23·5 minutes and service ceiling was 23,000 ft. Cruising range in still air was 1,315 miles.

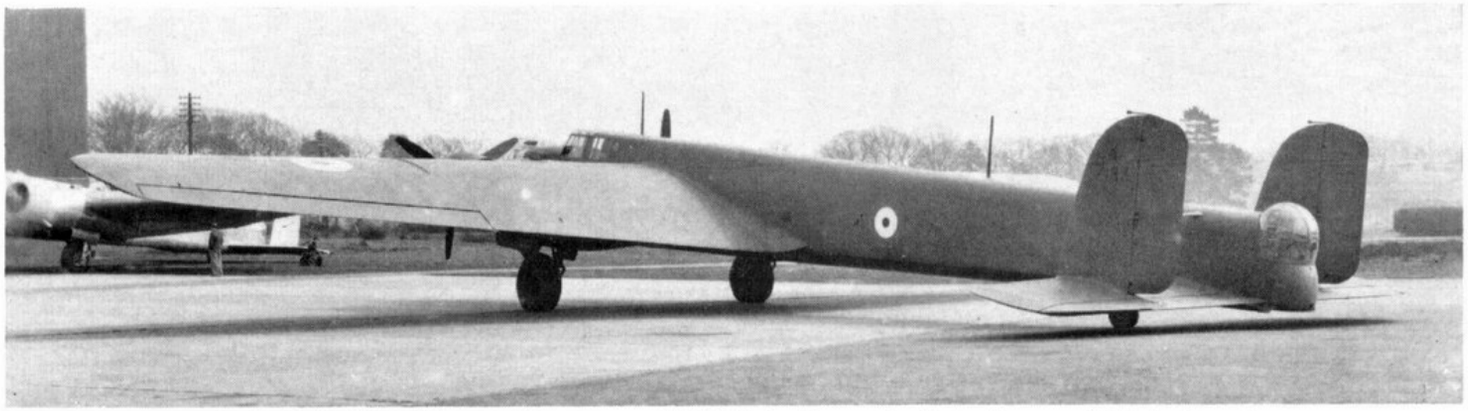
Whitley III.

80 production aircraft (Type 205) to B.20/36 (contract No. 522438/36) serialled *K8936–K9015*. The twenty-ninth production Mk. I, *K7211*, acted as the prototype after modification.

From the viewpoint of defence, the most noteworthy feature of this Mark was the replacement of the manually-operated A.W. nose turret with its single Vickers gun, by a similarly-armed Nash and Thompson power-operated turret. The old A.W. manually-operated rear turret was retained, but to widen the aircraft's field of fire, a ventral "dustbin", retractable and rotatable through a full 360 degrees and mounting twin ·303 in. Browning machine guns, was installed amidships. Although a "well" was provided in the fuselage floors of all Marks of Whitley, only in the Mk. III was the "dustbin" actually installed.

Other changes in the Mk. III included the incorporation of increased dihedral on the outer wing panels, improved navigational facilities, and new bomb racks to accommodate bombs of larger calibre.

Early Tiger-Whitleys in final assembly stage at Baginton. No. 10 Squadron's Mk. I K7185 "H-Harry" is seen in the foreground.



First production Whitley I, K7183, with second prototype, K4587, in background. Note absence of dihedral on wings.

Whitley IV and IVA.

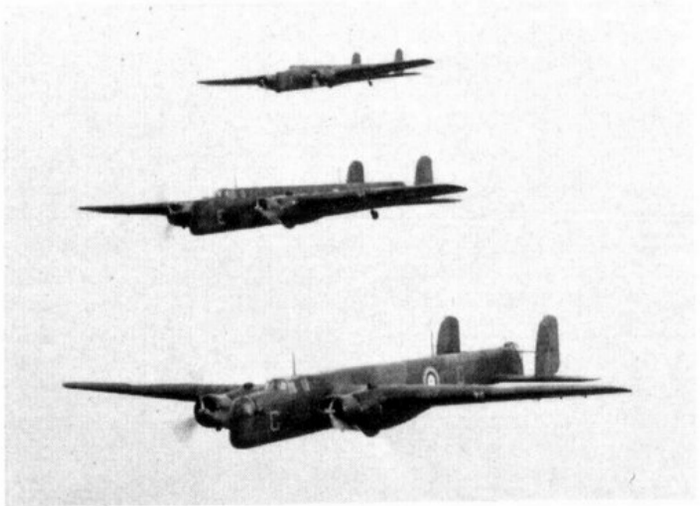
33 production Mk. IVs (contract No. 522438/36) serialled *K9016–K9048* and seven production Mk. IVAs (same contract) serialled *K9049–K9055*. Three Mk. Is were re-engined to serve as prototypes: *K7208* (also formerly the Type 201), *K7209* and *K7211* (the latter having previously served as the Mk. III prototype).

By the time the eightieth and last Whitley III was built in 1938, the bomber had gained a new lease of life with the substitution of two Rolls-Royce Merlin IV twelve-cylinder, liquid-cooled Vee in-line engines for the air-cooled Tiger radials. Thus was born the Whitley IV, the main production version of which was the Type 209 (commencing *K9016*); this had Mk. IV auto-controls and—most important of all—a Nash and Thompson power-operated rear turret mounting four ·303 in. Browning machine guns. With this new tail turret the Whitley became the first bomber in the world to be so powerfully armed against attack from astern. Other changes included the provision of two additional fuel tanks, each of 93 Imp. gal. capacity, in the wings, increasing the normal tankage to 705 Imp. gal. (with auxiliary tanks max. fuel was 837 Imp. gal.) and the fitting of a Plexiglass "chin" extension for the bomb-aimer in place of the flush-fitting panel of earlier Marks.

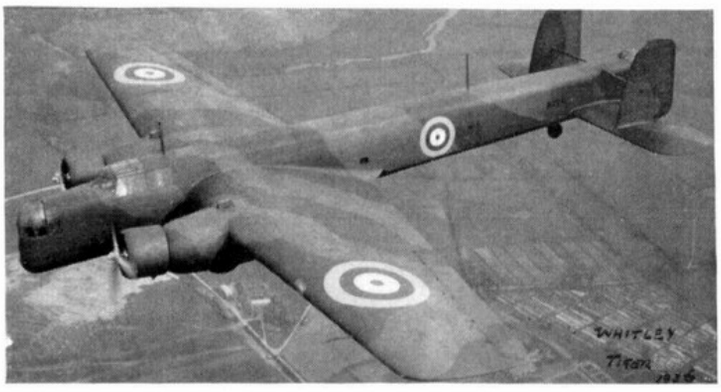
The Whitley IV's two 1,030 h.p. Merlin IV engines, driving three-bladed Rotol constant-speed aircrews with Weybridge wooden blades, gave it a markedly improved performance. Maximum speed was 245 m.p.h. at 16,000 ft., and cruising speed 220 m.p.h. at 15,000 ft., this altitude being reached in 16 minutes. Maximum range was 1,800 miles and normal cruising range 1,250 miles—both in still air. Empty weight was 17,250 lb. and normal a.u.w. 25,900 lb.

The 1,075 h.p. Merlin X engine was installed in the final seven Whitley IV airframes which then became known as Mk. IVAs (Type 210).

A few of the 40 Mk. IVs/IVAs built retained the old A.W. manually-operated rear turret, and were

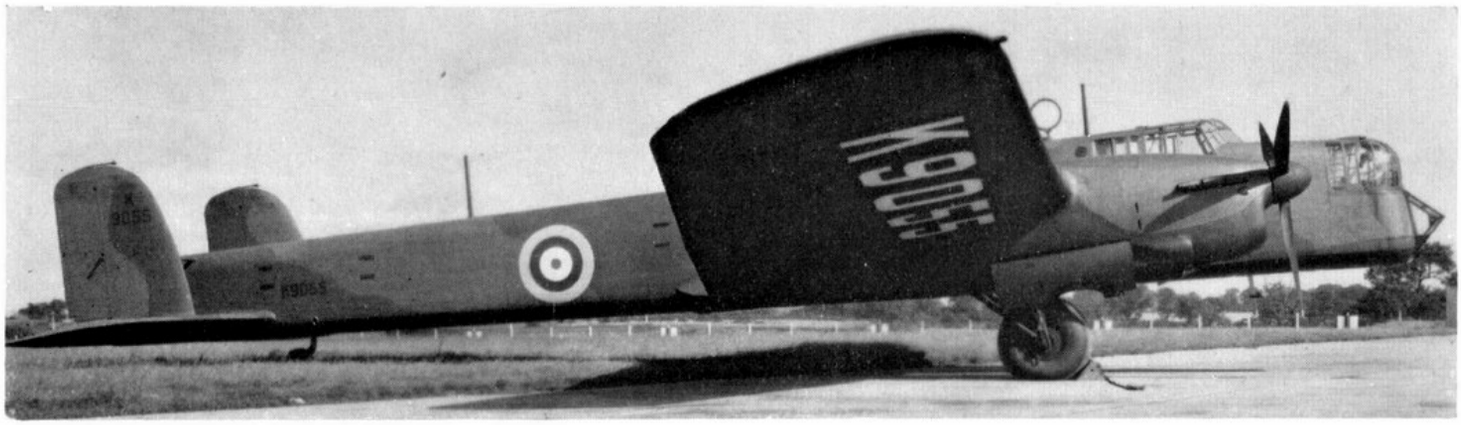


Whitley I's "C", "E" and "F" of No. 10 Squadron, Dishforth, 1937. The Tiger Whitley was smoother in the air and more handleable than the Merlin variants. (Photo: "Flight")



The ninth production Whitley I K7191.

K9025, the tenth production Whitley Mk. IV.



K9055, the seventh and last Whitley IVA.

known as Type 206s, an example being *K9054*—a machine eventually scrapped at Cambridge in 1943.

Whitley V.

1,466 production aircraft (Type 207), the "first off" (*N1345*) acting as prototype. Production breakdown as follows: 312 aircraft to contract No. 75147/38 serialled *N1345–N1394, N1405–N1444, N1459–N1508, N1521–N1528, P4930–P4974, P4980–P5029, P5040–P5065, P5070–P5112.* 150 aircraft to contract No. 38599/39 serialled *T4130–T4179, T4200–T4239, T4260–T4299, T4320–T4339.* 1,004 aircraft to contract No. 106962/40 serialled *Z6461–Z6510, Z6552–Z6586, Z6624–Z6673, Z6720–Z6764, Z6793–Z6842, Z6862–Z6881, Z6931–Z6959, Z6970–Z6980, Z9119, Z9125–Z9134, Z9140–Z9168, Z9188, Z9189, Z9200–Z9232, Z9274–Z9323, Z9361–Z9363, Z9384–Z9390, Z9419–Z9443, Z9461–Z9490, Z9510–Z9515, AD665–AD714, BD189–BD238, BD252–BD296, BD346–BD395, BD411–BD422, BD435–BD445, BD493–BD512, BD530–BD560, BD626–BD639, BD659–BD674, EB283–EB313, EB337–EB367, EB384–EB391, EB402–EB410, LA763–LA793, LA818–LA856, LA868–LA899, LA914–LA951.*

The Mk. V was the most extensively produced version of the Whitley. Like the Mk. IVA it was powered by Merlin X engines, but its fuselage was 15 in. longer, the result of an extra section having been added immediately aft of the rearmost frame, to improve the rear-gunner's field of fire. Other differences were that the tail fins and rudders were redesigned, B.T.R. rubber de-icing boots were fitted on the leading edges of the wing, fuel capacity was increased to 837 Imp. gal. (normal) and 969 Imp. gal. (max.), and the D/F loop (smaller than hitherto) was housed in a streamlined fairing. Top speed was 230 m.p.h. at 16,400 ft., and cruising speed 210 m.p.h. at 15,000 ft. Initial rate of climb was 800 ft. per minute, time to 15,000 ft. 16 minutes, and service ceiling 26,000 ft. It had a maximum still-air range of 2,400 miles at 12,000 ft. and a normal cruising range of 1,500 miles. Maximum loaded weight was 33,500 lb., empty weight 19,350 lb., and military load 7,373 lb.

Whitley VI.

As an insurance against any shortage in the supply of the Merlin X, a scheme to use the Pratt and Whitney Twin Wasp G.R.1830 radial engine as an alternative Whitley V power-plant was devised by Armstrong Whitworth, who designated the project the Whitley VI. The Merlin supply never failed and the Mk. VI remained a project.

Whitley VII.

146 production aircraft (Type 217), to contract No. 106962/40, the Mk. V *P4949* acting as prototype. Serials *Z6960–Z6969, Z9120–Z9124, Z9135–Z9139, Z9190–Z9199, Z9364–Z9383, Z9516–Z9529, BD423–BD434, BD561–BD574, BD620–BD625, BD675–BD693, EB282, EB327–EB336, EB392–EB401, LA794–LA798, LA813–LA817.* To supplement these aircraft, a number of Mk. V's were converted to Mk. VII's, e.g. *Z6633* illustrated on page 13.

This was a modified version of the Mk. V expressly intended for general reconnaissance duties with Coastal Command and equipped with the long-range A.S.V. Mk. II air-to-surface vessel radar. It was the first operational aircraft to have A.S.V. Mk. II and its crew was increased from five to six to include a radar operator. It weighed 19,605 lb. empty and 33,950 lb. fully loaded, and carried a military load of 5,993 lb. The increase in loaded weight combined with the drag-producing A.S.V. radar aerials, reduced

G-AGDY (ex-BD386) one of the fifteen Whitley V's which were converted into freighters for B.O.A.C. in 1942.
(Photo: "The Aeroplane")

Whitley in normal flying attitude, caused by wing incidence.

Starboard fin and rudder, inboard camouflage scheme.

Port fin and rudder, inboard camouflage scheme.

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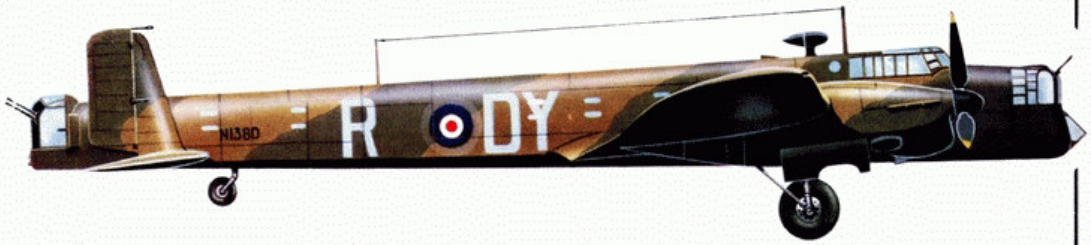
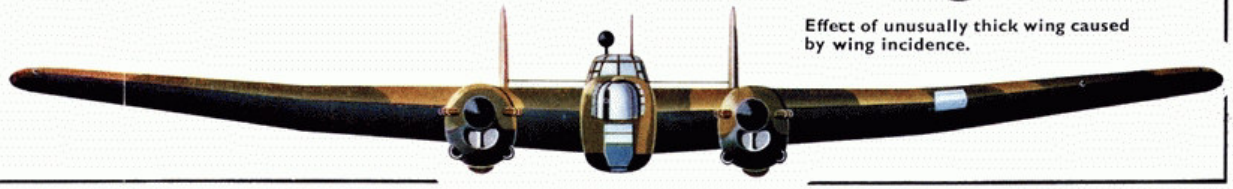
ARMSTRONG WHITWORTH WHITLEY Mk. V, N1380, DY-R, at No. 102 (B) Squadron, R.A.F., based at Driffield, Yorkshire, U.K. in April 1940. This Whitley is believed to have been the first Royal Air Force aircraft to deliberately drop bombs on enemy land targets in the Second World War – during an attack on Hornum seaplane base on 19th/20th March, 1940.





Effect of unusually thick wing caused by wing incidence.

N1349, the fifth production Whitley V, seen in partly-unpainted state. The Whitley V was one of the types given production priority by Lord Beaverbrook in 1940. (Photo: Ministry of Defence)

its maximum speed to 215 m.p.h. at 16,400 ft., its cruising speed to 195 m.p.h. at 15,000 ft., and its ability to remain airborne on one engine. Fuel capacity was increased to 969 Imp. gal. (normal) and—with four auxiliary tanks in the rear fuselage in addition to two in the front fuselage bomb cells—1,101 Imp. gal. (maximum), resulting in a maximum range of 2,300 miles at 12,000 ft. Time to 12,000 ft. was 22 min. and service ceiling 20,000 ft.

Some Whitley VII's were converted, to Admiralty requirements, for training flight engineers; special instructional equipment was installed and seating for pupils provided in the rear fuselage.

SOME SPECIAL WHITLEYS

Type 201.

This designation covered the modification of Mk. I *K7208* to enable it to operate at 33,500 lb. a.u.w.—an experiment which in practice necessitated practically no structural alterations whatsoever. Sole external change was that the nose and tail turret positions were faired over—a change which added 3 m.p.h. to the maximum speed. Maximum range of *K7208* in this form was 1,940 miles.

Deerhound Whitley.

In 1935 Armstrong Whitworth submitted a design for a development of the Whitley, designated A.W.39, in which the thick wing was used to house a buried engine installation consisting of two new Armstrong Siddeley Deerhound 21-cylinder three-row radial engines. The A.W.39 project was heavier than the Whitley, incorporated a Boulton-Paul dorsal turret and was designed to have a range of 1,500 miles cruising at 230 m.p.h. at 15,000 ft. and carrying 5,000 lb. of bombs. Although no contract was placed for this machine (it eventually went to the Vickers Warwick), two Deerhounds were installed for air tests in the twenty-seventh production Whitley II, *K7243*, the maiden flight being made from Baginton on 6th March, 1940, when the pilot was F/Lt. C. K. Turner-Hughes (then A.W.A.'s chief test pilot). Although output was increased from about 1,185 h.p.

First Whitley Squadron was No. 10, one of whose Mk. I's (K7199 "P-Peter") is shown above. Early Whitleys often lacked nose armament at first, turrets being fitted eventually by Messrs. Airwork at Heston. Below: *Mk. IV K9024 sporting No. 10 Squadron's badge on its nose.*

to 1,350 h.p. during development, the Deerhound was abandoned, mainly because of the difficulty of adequately cooling the rear row of cylinders. The Deerhound Whitley test bed was flown on several occasions by F/Lt. Eric Greenwood during 1940, but nearly every flight ended in an emergency landing as a result of the engines overheating. It is believed that the aircraft was eventually written off in a crash. Incidentally, no photograph of the Deerhound Whitley has ever come to light.

Mark V Freighter.

In April/May, 1942, fifteen Whitley Vs were converted into freighters by and for the use of B.O.A.C. Armament was removed and the turret recesses faired over with sheet metal, extra fuel tanks were installed in the bomb bays and the fuselage interior adapted for storing freight. One machine had its entrance door enlarged. The freighters were subsequently operated in the Middle East and, later, on the perilous Leuchars-Stockholm run; but for various reasons they proved quite unequal to the task and they were withdrawn from use. By 1943 all but one (G-AGCI, lost in the Mediterranean) had been handed back to the R.A.F.

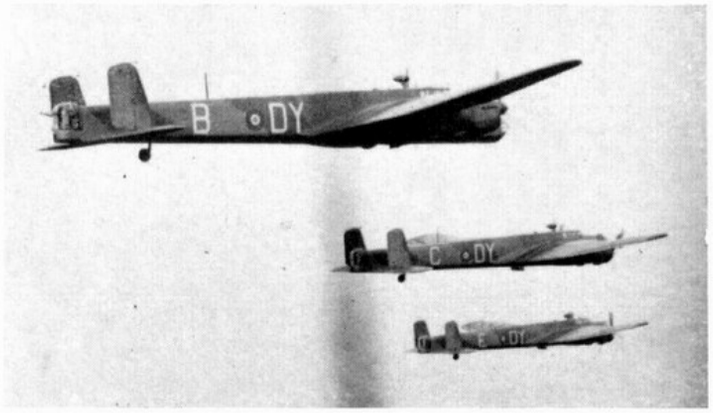
The fifteen aircraft converted into freighters were: *Z6660* (G-AGDW), *Z9208* (G-AGDU), *Z9216* (G-AGDV), *BD360–BD362* (G-AGCF to G-AGCH respectively), *BD382–BD384* (G-AGCI to G-AGCK respectively), *BD385–BD387* (G-AGDX to G-AGDZ respectively), *BD388–BD390* (G-AGEA to G-AGEC respectively).

THE WHITLEY IN R.A.F. SERVICE

First R.A.F. squadron to receive the Whitley was No. 10, then flying Heyfords and based at Dishforth, Yorkshire; it received its first Whitley Mk. I (*K7184*) on 9th March, 1937. In July, 1937, No. 10 was one of ten bomber squadrons to come under the executive command of No. 4 Bomber Group which had established headquarters at Linton-on-Ouse, following its move from Mildenhall, Suffolk, where it had formed three months earlier. This Group, after several changes in composition, eventually became wholly Whitley-equipped and operated, progressively, all the bomber Marks. Dates of entry into squadron service of the Marks II, III, IV and IVA (with first squadrons in parentheses) were January, 1938 (58 Sqdn.), August, 1938 (51 Sqdn.), May, 1939 (10 Sqdn.) and August, 1939 (78 Sqdn.). The Mark IV served mainly with Nos. 10 and 51 Squadrons although four aircraft were transferred in December, 1939 to No. 78 Squadron. The latter was the only squadron to receive the Mk. IVA—all seven of them.

At the outbreak of the Second World War on 3rd September, 1939, the R.A.F. had a total of 196 Whitleys on charge, the breakdown by Mark being as follows: Mk. I, 32; Mk. II, 43; Mk. III, 76; Mk. IV, 33; Mk. IVA, 7 and Mk. V, 5. First deliveries of the Whitley V were made to No. 78 Squadron—then a reserve squadron, about the end of August, 1939. After fitting them with operational equipment, No. 78, in September/October, handed over ten Mk. Vs to No. 77 Squadron, which thus became the first front-line unit to receive this Mark.

When the war began No. 4 Group, which was commanded by the late Sir Arthur "Mary" Coningham, was the only trained night bomber force in existence anywhere in the world. Although it was propaganda leaflets, or *Nickels*, rather than bombs that were dropped on Germany at first, the Group

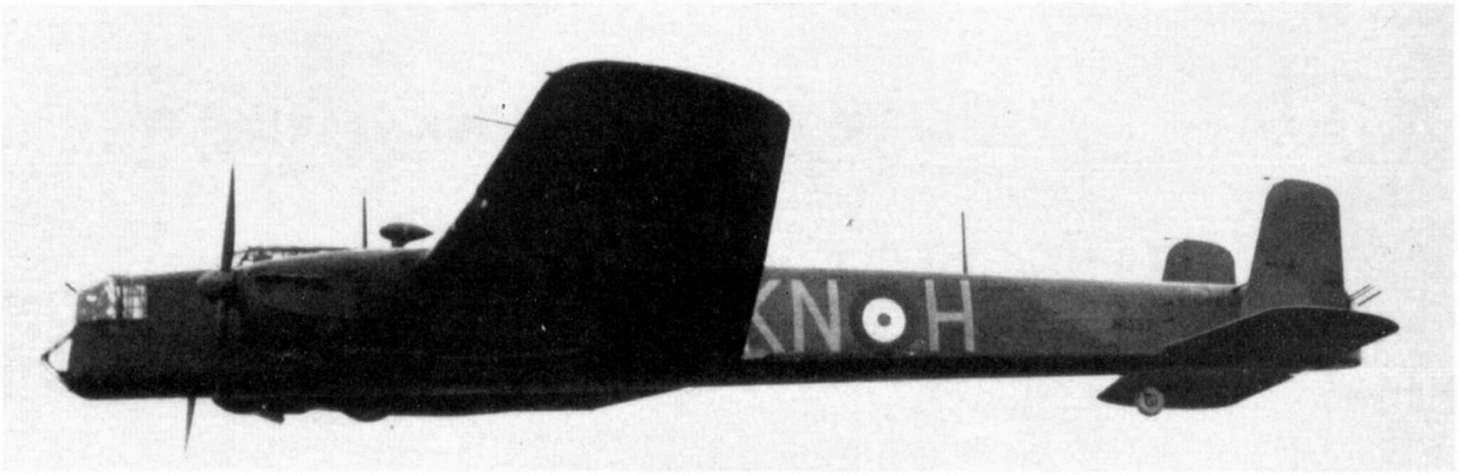


Formation of three Whitley V's from No. 102 (Ceylon) Squadron, Driffield, April 1940; N1417 "D Y-B" nearest camera.

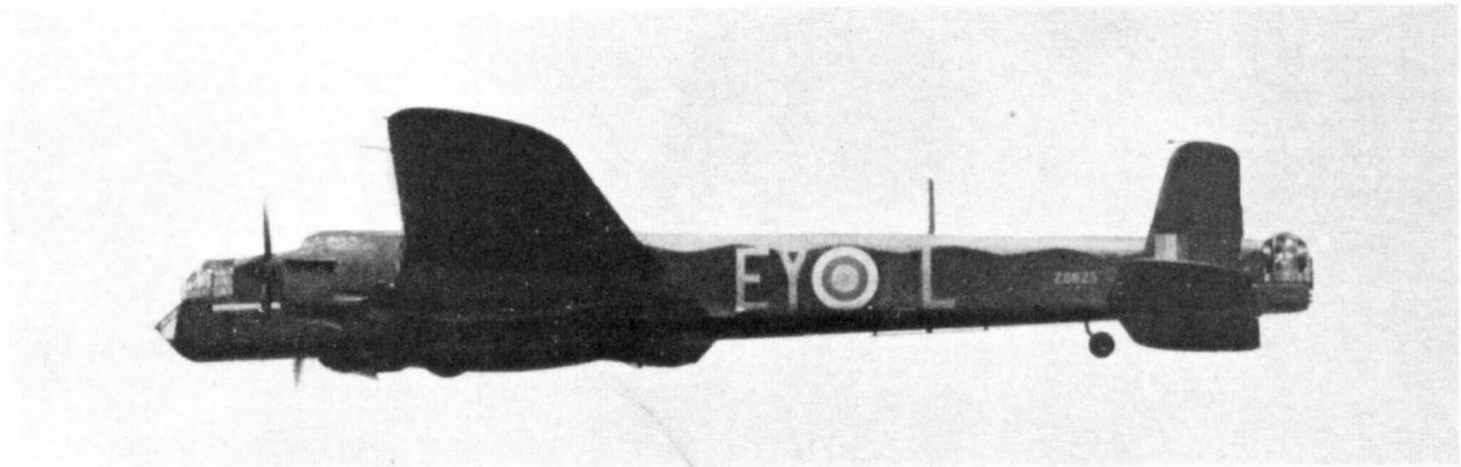
lost no time in starting operations, the first *Nickelling* mission being flown by ten Whitley IIIs from Nos. 51 and 58 Squadrons on the first night of the war. Normally based at Linton-on-Ouse, they operated from Leconfield on this occasion and during an extensive reconnaissance covering the Ruhr and North-West Germany they dropped six million *Nickels* and in doing so became the first aircraft of Bomber Command to penetrate into Germany in W.W.II. The machines that took part in this historic operation were *K8938*, *K8941* and *K8982* of No. 51 Squadron; and *K8964* "R", *K8969* "G", *K8973* "K" (flown by S/Ldr. J. J. A. Sutton who led the raid), *K8990* "L", *K9006* "E", *K9009* "M" and *K9013* "W" of No. 58 Squadron. These Tiger-engined Whitleys had been loaded with leaflets and dispersed around the perimeter at Linton ready for immediate operations as early as 1st September—the day that general mobilisation was ordered.

The first bombs dropped by No. 4 Group's Whitleys fell on the edge of, or in the sea near, Borkum and Sylt on 12/13th December, 1939, in an attempt to stop German seaplanes taking off on minelaying expeditions. This was followed by frequent patrols over the Frisian Islands and 250 lb. bombs were dropped on shipping and seaplane flare paths. Although little damage was done, invaluable experience was gained, not only by Security Patrols but by the *Nickelling* operations which took aircraft as far afield as Berlin, Prague and Warsaw. The difficulties encountered by these pioneering Whitleys were enormous, and the stories of their exploits are now legendary and need no repetition here. It can, perhaps, be mentioned

Crew member of No. 102 Squadron's Whitley V "B-Baker" demonstrates how "Nickels" were dropped down flare 'chute. (Photo: Imperial. War Museum)



Above: *Whitley V N1357 "H-Harry" of No. 77 Squadron, Driffield, April 1940.* (Photo: Imperial War Museum)
Below: *Whitley V Z6625 "L-Love" of No. 78 Squadron.*



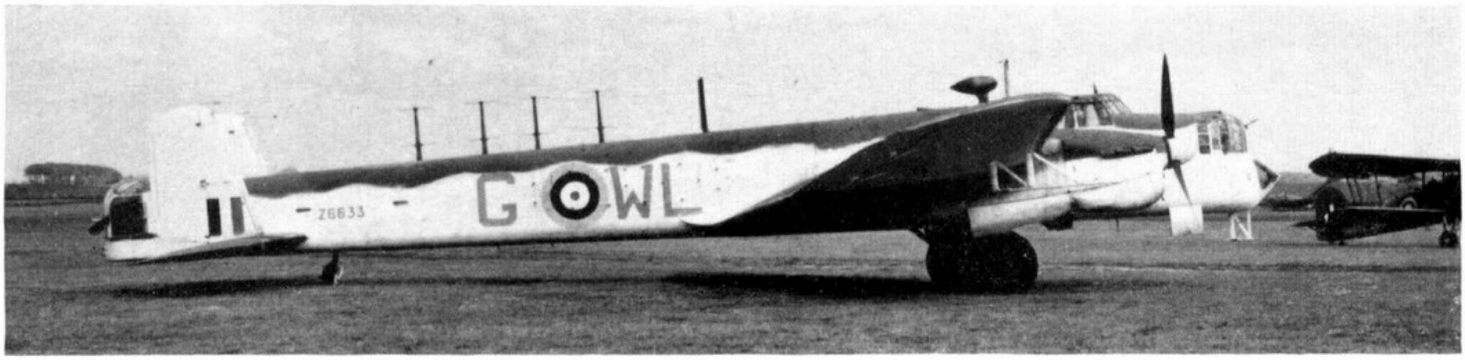
that the most amazing incident was that which involved No. 77 Squadron's Whitley V *N1387* "L-Love" (F/Lt. Tomlin) during a sortie to Warsaw on 15/16th March, 1940; after dropping its *Nickels* on Warsaw, the aircraft landed in Germany by mistake, stayed on the ground for quarter of an hour and, when the crew discovered the awful truth, got away with only seconds to spare !

No. 4 Group's Whitley Vs were also responsible for the first deliberate bombing of a German land objective (the seaplane base at Hörnum on the island of Sylt on 19/20th March, 1940, by Nos. 10, 102, 77 and 51 Squadrons) and the first bombing raid on the German mainland (lines of communication on German Army's route to Southern Holland on 10/11th May, 1940, by Nos. 77 and 102 Squadrons). The British press made a big story on the Hörnum raid, heaping the credit for the success of the attack on No. 10 Squadron and its C.O. W/Cdr. "Crack-em" Staton who, they said, captained the first aircraft to drop its bombs. Actually, a Whitley flown by S/Ldr. Macdonald, C.O. of No. 102 Squadron, dropped the first bombs. (This aircraft forms the subject of the five-view drawing on pp. 8 and 9). So later, a No. 102 Squadron Whitley from Driffield flew over No. 10's base at Dishforth and dropped leaflets bearing a message of mock congratulations. Not to be outdone, a No. 10 Squadron aircraft next day littered Driffield with sheets of toilet paper printed with elegant verse gently pointing out that the Driffield aircraft raiding Hörnum went in late ! However, the fact remains that the first bombs to be dropped on Hörnum were dropped by No. 102 Squadron.

Yet another historic "first" achieved by the Whitley was the R.A.F.'s first raid on Italy on 11/12th June, 1940, a few fours after Mussolini's declaration of war. On that occasion the bombers made refuelling stops *en route* in the Channel Islands before flying across the Alps to bomb Turin and Genoa.

The full story of the Whitley's contribution to the bombing offensive is far beyond the scope of this *Profile* but one fact that does deserve mention here is that on the Whitley—that "grand old lady" of

Whitley V paint schemes compared. Top to bottom: "ZA-O" of No. 10 Sqdn, "GE-L" of No. 58 Sqdn., and "DY-P" of No. 102 Sqdn. (Centre photo: Imperial War Museum)

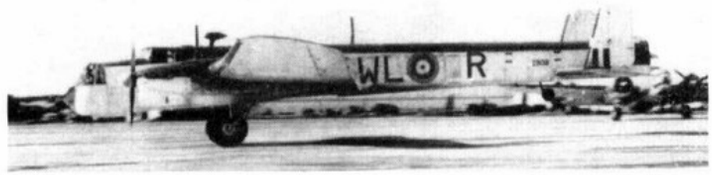


Xmas tree: Whitley VII Z6633 "G-George" of No. 612 Squadron festooned with A.S.V. radar aerials. (Photo: "The Aeroplane")

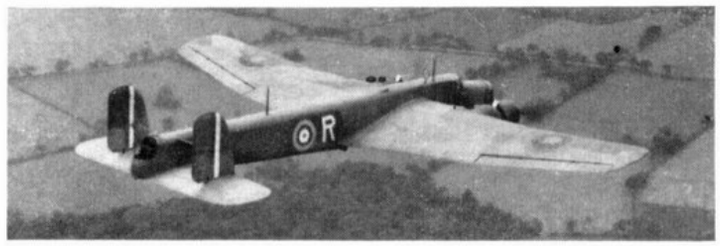
Bomber Command—graduated some of the leading bomber "aces" of the war; among them were "Pathfinder" Bennett, "Willie" Tait, "Hamish" Mahaddie and Leonard Cheshire, V.C. On the night of 12/13th November, 1940, during an attack on Cologne in a No. 102 Squadron Whitley V occurred the well-known exploding flare incident which resulted in Cheshire's gallantry being recognised by an immediate award of the D.S.O.—the first of a long line of well-earned decorations. The durable "N-Nuts" which he brought back to base that night was serialled *P5005*. The last operational mission by a Whitley squadron of Bomber Command took place on the night of 29/30th April, 1942, when No. 58 Squadron bombed Ostend docks.

In late 1939 and 1940 Nos. 51, 58, 77 and 102 Whitley Squadrons were loaned for varying periods to Coastal Command for convoy escort and anti-submarine duties. In the autumn of 1940 Whitley Vs superseded Ansons in No. 502 (General Reconnaissance) Squadron at Aldergrove and in the following year No. 612 (G.R.) Squadron's Whitley Vs were added to the anti-submarine force. The Whitley VII entered service with Coastal at the end of 1941 and on 30th November, 1941, one such machine (*Z9190* "YG-B") of No. 502 Squadron operating from Chivenor made the first A.S.V. "kill" by sinking *U-206* in the Bay of Biscay. Whitleys remained in squadron service with Coastal Command until early 1943.

Another field in which the Whitley helped to make history was as a paratroop transport and glider tug with the Airborne Forces. In 1940, when the Central Landing School—later to become No. 1 Parachute Training School—was established at Ringway the Whitley was chosen as the standard transport. The first experimental jumps were made from four Whitley IIs, using ordinary rip-cord-operated parachutes; they were pull-offs from crude platforms which replaced the Whitley's rear turrets. Thereafter the old "dustbin" turret apertures were modified for use as paratroop exits, and the static line which opened 'chutes automatically, became the standard dropping method. Eventually, Whitley IIIs, IVs and Vs all saw service at Ringway and played a magnificent part in training Britain's "Red Beret" army from scratch. As a dropping vehicle, however, the Whitley had one grave drawback: five men were carried forward and five aft of the dropping exit, and those in the rear jumped facing the slipstream which frequently caused immediate somersaulting, resulting in malfunctioning of the parachute. "Candles"—the dreaded failure of 'chutes to develop—were not infrequent on Whitleys. But during the Whitley's wartime career as a troop carrier, and indeed for some time afterwards,



Another Whitley VII of No. 612 Squadron (Z9138) with A.S.V. aerials removed by wartime censor. (Photo: I.W.M.)



Above: *A Whitley II or III converted for para-dropping.*

Below: *Mk. V T4149 with underwing RATOG containers; used by R.A.E., Farnborough.*

Luftwaffe "flak" personnel examine the Nash and Thompson tail turret of 102 Squadron Whitley V N1377 which crashed at Spijkenisse, Holland, on 31st August, 1940.
(Photo: via G. Zystra)

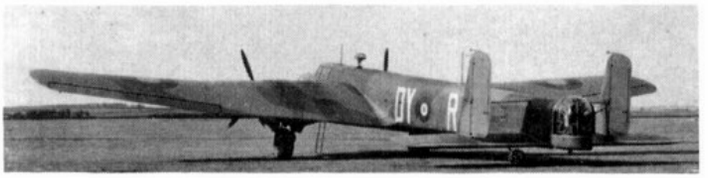
Mk. V T4261 "DY-S" presented to No. 102 Squadron by the people of Ceylon. Eventual loss of this machine in the North Sea was dramatically described (albeit without revealing its true identity) by F/Lt. R. C. Rivaz in his autobiography "Tail Gunner".
(Photo: Imperial War Museum)

the cause of these "candles" remained a mystery.

Troop-carrying Whitleys—albeit aircraft of Bomber Command—transported the troops on both the early paratroop raids—to destroy the *Acquedetto Pugliese* at Tragino in Southern Italy (Operation *Colossus*) and to obtain a vital *Würzburg* installation from the German radar station on the French coast at Bruneval (Operation *Biting*). *Colossus* was executed on 10/11th February, 1941, using Whitleys of No. 78 Squadron (some flown by No. 51 Squadron crews), and *Biting* on 27/28th January, 1942, using Whitleys of No. 51 Squadron led by S/Ldr. P. C. Pickard.

The Whitley's career as a glider tug began in 1941, the Mark V being used throughout. The first tugs had their rear turrets removed and the release and towing gear stowed in the space thus provided, but eventually it was decided to retain the turret and fit a metal towing yoke beneath it. The weight of the glider tug Whitley V was reduced to 23,170 lb., and one Airspeed Horsa Mk. I which weighed 15,520 lb. fully loaded was usually towed. Main centre of Whitley glider towing activity during the war was No. 21 Heavy Glider Conversion Unit at Brize Norton, Oxfordshire. Glider tug Whitleys also served in the training squadrons of No. 38 Wing (sometimes in the dual rôle of glider tugs and paratroop transports) and a little known fact is that occasional leaflet-dropping raids over the Low Countries were made by these aircraft as late as March, 1943.

Five Whitley V tugs—*N1348*, *N1386*, *Z9390*, *BD530* and *LA893*—were used by the Royal Aircraft Establishment. With two of these, *Z9390* and *BD530*, were conducted twin glider-towing trials; they also helped to test brake parachutes which were released from the space formerly occupied by their rear turrets. To all those who remember the Whitley the sight of it towing a parachute can well be imagined ! Talking of parachutes, a Whitley of unknown Mark based at Henlow, Bedfordshire, figured in the initial —and completely successful—tests with cluster parachutes for dropping heavy loads. The test object dropped was the case of a large German bomb filled with lead shot and known to the "Boffins" concerned as "Hermann".



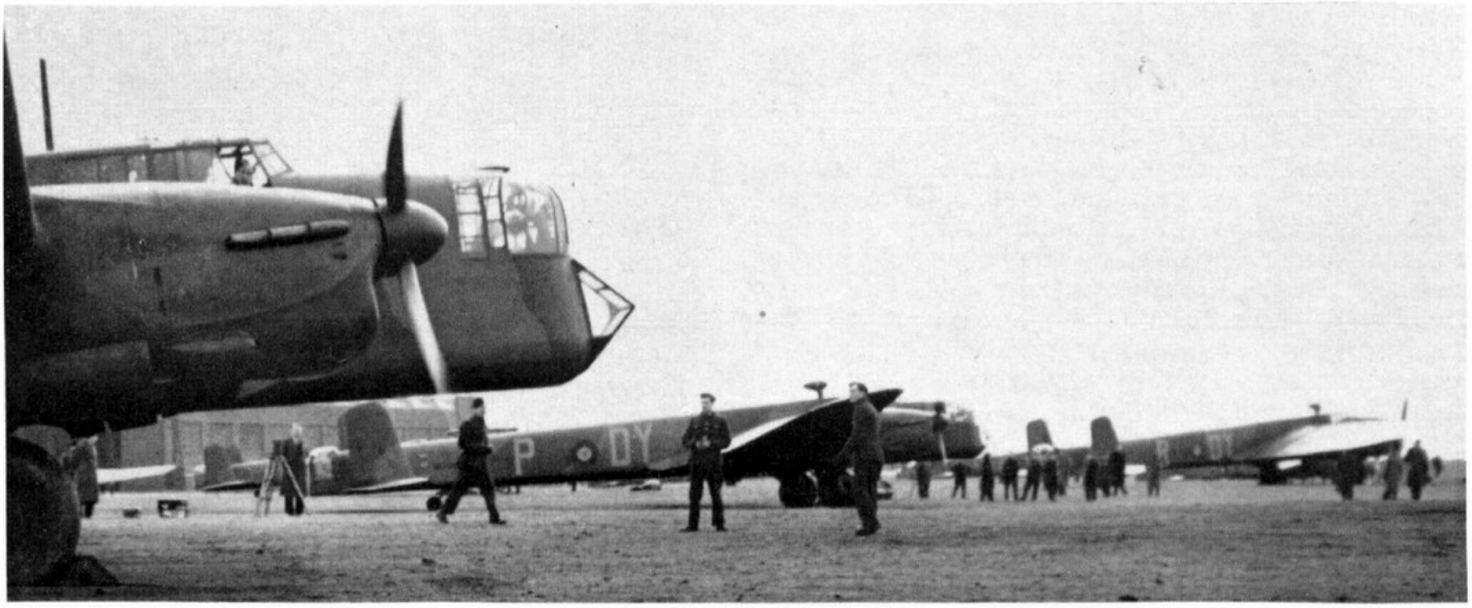
Mk. V N1380 "DY-R" of No. 102 Squadron, subject of the 5-view drawing on pp. 8 and 9. (Photo: "The Aeroplane")

HANDLING NOTES

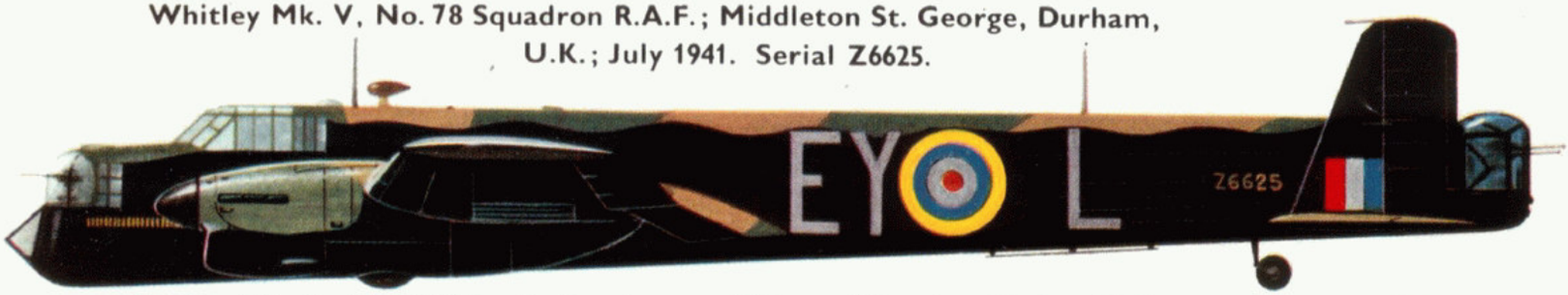
Although the Whitley enjoyed the affection of its crews, it was a strange device for the uninitiated. A pilot who flew most (if not every) Mark was Mr. H. A. Taylor* and he remembers it as an aircraft which was

**Wartime ferry and test pilot and now Air Transport Editor of* Flight International.

Whitley V's of No. 102 Squadron, Driffield, April 1940. "R-Roger", subject of the five-view colour drawing, is seen at extreme right.

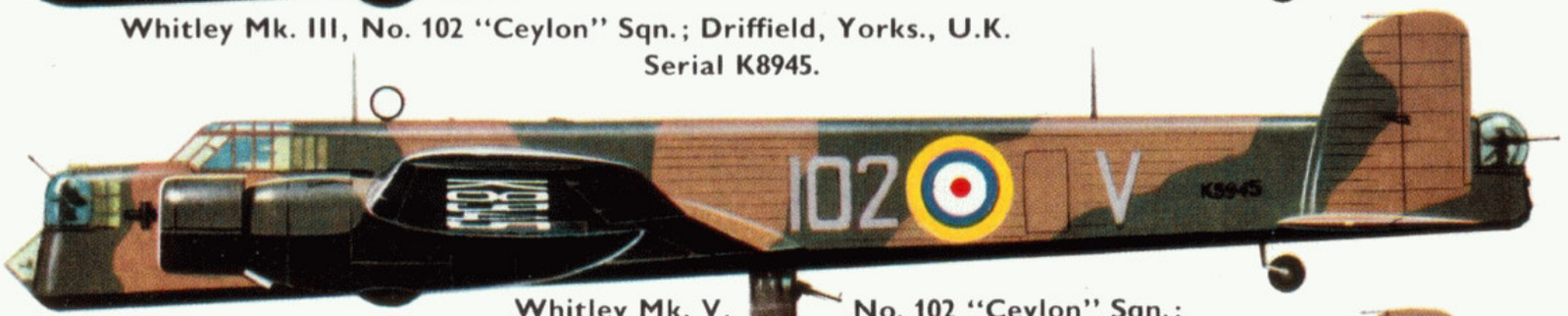


Whitley Mk. V, No. 78 Squadron R.A.F.; Middleton St. George, Durham, U.K.; July 1941. Serial Z6625.

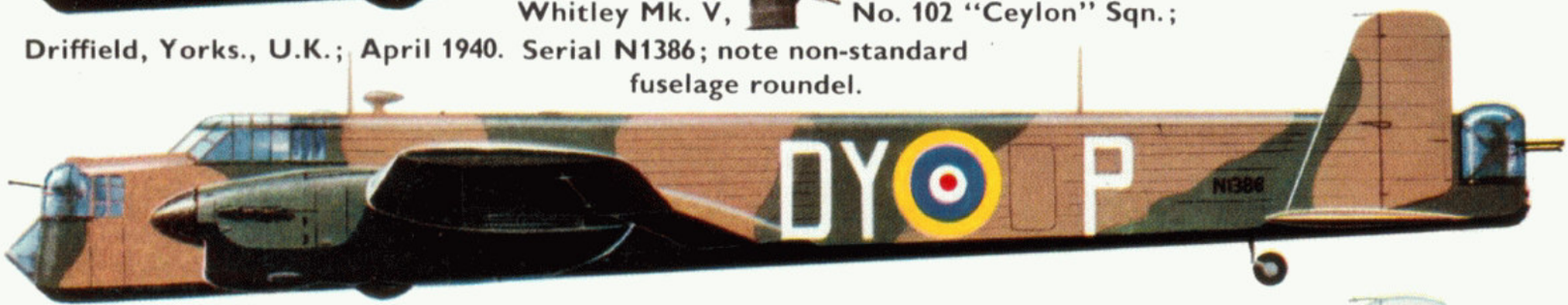


Whitley Mk. II, No. 97 "Straits Settlements" Sqn.; Abingdon, Berks., U.K.; March 1940. Serial K7229.

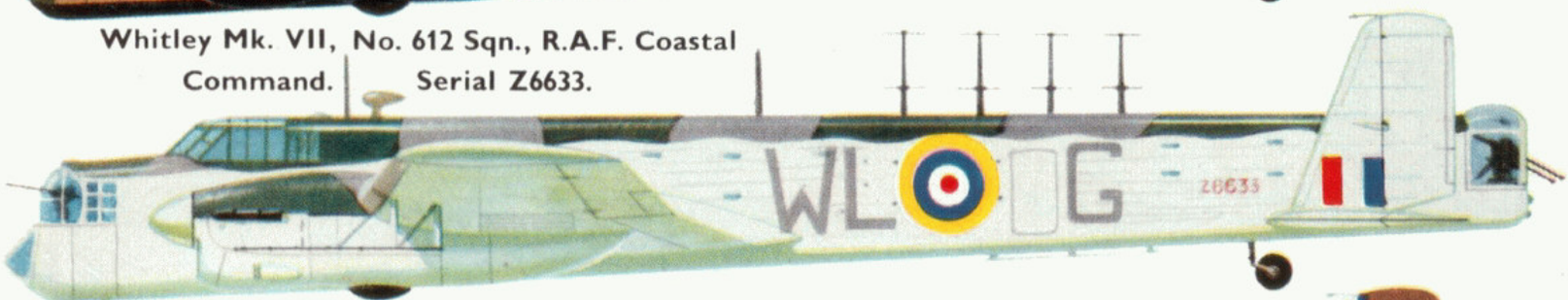
Whitley Mk. III, No. 102 "Ceylon" Sqn.; Driffield, Yorks., U.K. Serial K8945.



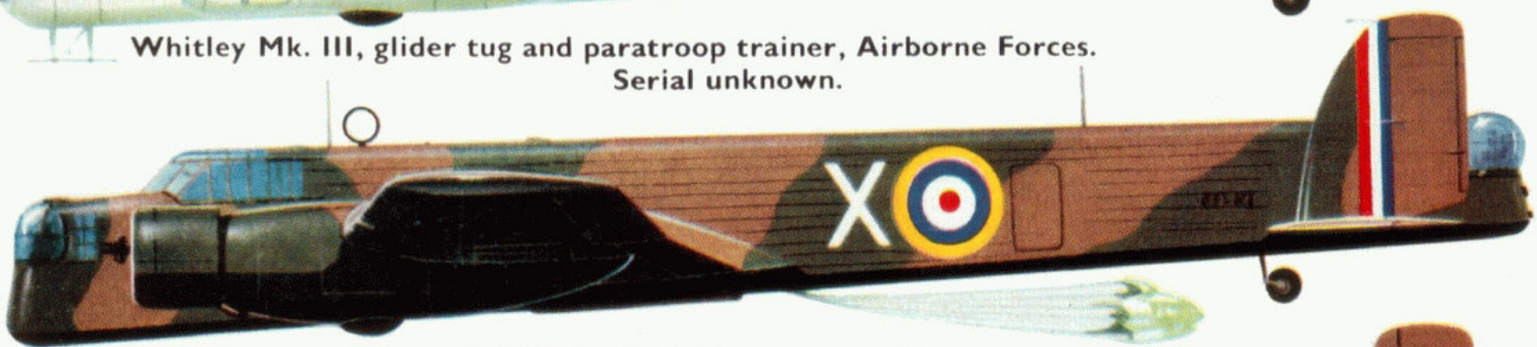
Whitley Mk. V, No. 102 "Ceylon" Sqn.; Driffield, Yorks., U.K.; April 1940. Serial N1386; note non-standard fuselage roundel.



Whitley Mk. VII, No. 612 Sqn., R.A.F. Coastal Command. Serial Z6633.

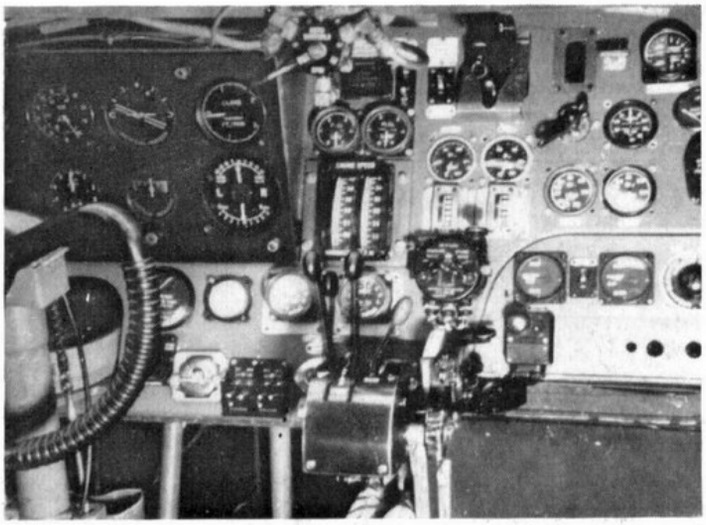


Whitley Mk. III, glider tug and paratroop trainer, Airborne Forces. Serial unknown.



Whitley Mk. V transport, G-AGDY of British Overseas Airways Corporation.

© WARD



The "office" of a Whitley. (Photo: Imperial War Museum)

never quite under his full personal control, but which, at all times, was so very docile (if not ductile) that it could be left largely to its own devices.

While the Whitley never at any time did quite what it was told to do, he says, the things it did were usually reasonable and comfortable. When lightly loaded it tried to float quietly off the ground before the pilot had got both throttles up to take-off power. Similarly, its arrival on the ground was uniquely an affair of its own. "One motored gently in with the two Merlins singing their customarily varying song [they could rarely be synchronised for more than a few seconds at a time], and proceeded to attempt a hold-off. That part was all right, but when one tried to get the tail fully down nothing very much happened. The thing just wheeled itself quietly and softly on to the ground and seemed to take no notice whatever of the driver."

By spinning the trim wheel back rapidly at the critical moment it was, in fact, possible for the pilot to get the tail down, but even so the Whitley still appeared to be making its own arrangements—and very good arrangements they usually were. Only rarely did the onlooker see anything in the way of a heavy or 'bouncy' arrival. "Even when it appeared as if everything were about to be dropped remorselessly, that fat wing, so near the ground, took over and cushioned the drop during its last few inches, while the ground angle was such that, whatever happened, no serious kind of 'aerodynamic' bounce seemed to be possible. The Whitley just stayed quietly on the ground while a series of intermittent hissings told the inactive members of the crew just how much differential braking and over-correction was being applied by the pilot".

Directionally, the Merlin Whitley could, at times, be something of a handful. For some good reason the swing to port on take-off could not be satisfactorily held on the rudders, so that the aircraft had often floated crabwise into the air before the starboard throttle had been brought up to take-off boost. However, pilots very soon learned to use a lot of differential power during the first part of the take-off—for if allowed to deviate to port the aircraft demanded corrective measures which could eventually become very untidy indeed.

Old Whitleys never die . . . Two veterans being used for dinghy drill at No. 10 O.T.U., T4284 "ZG-E" (ex "GE-B" of No. 51 Sqdn.) and Z9478 "RK-B". (Upper photo: Chas. E. Brown)

WHITLEY SQUADRONS

Bomber Command: Nos. 7, 10 (detachment loaned to Coastal Command in Nov./Dec. 1939), 51 (detachment loaned to C. Cmd. Nov./Dec. 1939 and entire sqdn. loaned to C. Cmd. May-Oct. 1942), 58 (detm't and eventually entire sqdn. loaned to C. Cmd. between September, 1939 and February, 1940. Sqdn. transferred to C. Cmd. in April, 1942), 77 (detm'ts loaned to C. Cmd. in Nov. 1939 and Apr./May 1940 and entire unit loaned to C. Cmd. from May, 1942, to the following October), 78, 97, 102, 138 (Special Duties) and 166 Squadrons.
Coastal Command: Nos. 51, 58, 77, 502 and 612.
No. 38 Wing: Nos. 295, 296 and 297.

TOTAL NUMBER BUILT

Two A.W. 38 prototypes, 34 Mark I, 46 Mark II, 80 Mark III, 33 Mark IV, 7 Mark IVA, 1,466 Mark V, 146 Mark VII. Grand total, 1,814.

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